CONCLUSIONS Changes in serum concentrations of sex hormones are extensive in adult patients with IPAH. The influence of these changes on the development of PAH and on the outcome of this condition deserves further study.

GW26-e2948

The Application of Intravascular Ultrasound to Evaluate Pulmonary Vascular Properties and Predict Mortality in Pulmonary Arterial Hypertension

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OBJECTIVES We aimed to explore the application of intravascular ultrasound (IVUS) to evaluate pulmonary vascular properties (PVPs) and predict mortality in pulmonary arterial hypertension (PAH).

METHODS Patients (n=51) with a systolic pulmonary arterial pressure (SPAP) ≧40mmHg based on echocardiography were prospectively enrolled. After underwent right heart catheterization (RHC) and IVUS, they were divided into 3 groups: PAH associated with connective tissue diseases (PAH-CTD) group (group1, n=25), PAH due to other causes group (group2, n=15), and CTDs patients without PH (group3, n=11). PAH group (groups 1 and 2) was divided into distal and proximal remodeling subtype based on IVUS results. All patients were followed-up to compare the differences among clinical variables, PVPs and survival rates.

RESULTS A total of 408 segments of pulmonary vessels were studied. PAH group demonstrated a greater mean wall thickness (MWT) (0.30±0.02, 0.33±0.02 vs. 0.21±0.02 mm, $P<0.01$) and a higher percentage of MWT (WTP) (13.62± 0.59, 14.39±0.77 vs. 9.57±0.97%, $P<0.01$) than group 3. Additionally, the pulmonary vascular mechanical properties (PVMPs) in PAH group were found to be worse than those in group 3, with reduced compliance ($8.85\pm0.82\times10^{-2}$, $6.28\pm0.65\times10^{-2}$ vs. $41.59\pm5.02\times10^{-2}$ mm2/mmHg, $P<0.01$) and distensibility (0.83±0.09, 0.55±0.06 vs. 3.16±0.38%/mmHg, $P<0.01$), higher elastic modulus (EM) (169.25±15.10, 253.00±22.11 vs. 43.78±4.27 mmHg, $P<0.01$) and stiffness index β (4.19±0.41, 5.18±0.34 vs. 2.39±0.27, $P<0.01$). Furthermore, an inverse exponential association was found between PVMPs and hemodynamic abnormalities, with R^2 ranging from 0.544 to 0.777 ($P<0.001$). There was no difference between groups 1 and 2 in survival curves. However, the distal remodeling subtype had a higher mortality (22.73%) than the proximal remodeling subtype with a hazard ratio of 10.14 (95% confidence interval: 1.686-61.00, $P<0.05$).

CONCLUSIONS IVUS may be useful in assessment of PH by evaluating PVPs and predicting mortality. PAH group demonstrated worse PVPs than CTDs patients without PH. PAH-CTD patients had better PVMPs than PAH-due to other causes. There was no difference between PAH groups in survival curves. However, distal remodeling subtype had a higher mortality than proximal remodeling subtype.

GW26-e4462

Prognostic value of cardiac troponin T and plasma lactate levels among patients with acute pulmonary embolism

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OBJECTIVES To investigate the clinical value of detecting cardiac troponin T (cTnT) and plasma lactate (lac) for risk stratification and prognosis evaluation in patients with acute pulmonary embolism (APE).

METHODS From January 2013 to Desember 2014, a total of 89 patients were diagnosed with APE. All patients with a diagnosis of APE established by lung scan or spiral computed tomography (CT) and confirmed by pulmonary angiography if necessary. Plasma troponin T and lactate levels were tested at presentation. We considered lactate values greater than or equal to 2 mmol/L and troponin T values greater than or equal to 0.10 ng/mL to be abnormal. 89 patients with confirmed APE were divided into three groups according to the levels of troponin T and plasma lactate: Group1 ($n = 16$): cTnT < 0.1 ng/ml and lac < 2.0 mmol/L; Group 2 ($n = 35$): cTnT ≥ 0.1ng/ml or lac ≥ 2.0 mmol/L; Group3 ($n = 38$): cTnT ≥ 0.1 ng/ml and lac ≥ 2.0 mmol/L. Analysis of troponin T and plasma lactate elevated risk stratification in patients with APE's relationship with clinical prognosis.

RESULTS Of the 89 patients included in the study, the mean age was 67 years (SD 10.2 years) and 45 (50.6%) were women. Clinical harmful events were death caused by pulmonary embolism and clinical deterioration defined as progression to thrombolytic therapy, vasoactive drugs, mechanical ventilation, shock, or cardiopulmonary resuscitation. Patients with clinical harmful events in group 1, group 2 and group 3 were 0 (0%) case, 7 (20.0%) cases, 21 (55.3%) cases respectively and a significant difference was observed ($P<0.01$). In the group of proceeding clinical harmful events there were significant differences in troponin T and plasma lactate levels ($p<0.01$). 5 patients (5.6%) died in group 3and 0 (0%) case died in group 1 and group 2. All patients underwent thrombolysis treatment in group 3, 10 (28.6) patients underwent thrombolysis treatment in group 2, and all patients underwent routine anticoagulation.

CONCLUSIONS Combinational detection of troponin T and plasma lactate has important value for early risk stratification and prognosis evaluation in patients with APE. Patients with pulmonary embolism elevated troponin T and plasma lactate level are at high risk of death and adverse outcome.

GW26-e4721

Circulating Progesterone and Hemodynamic Parameters in Men with Idiopathic Pulmonary Arterial Hypertension

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OBJECTIVES Pulmonary arterial hypertension (PAH) is a female predominant disease. However, women have preserved right ventricle function and better survival compared with men suffered from PAH. This "sex paradox" indicates sex hormones may contribute significantly to the pathogenesis of PAH. We sought to assess the relationship between serum concentration of sex hormone and hemodynamic parameters in men with idiopathic PAH (IPAH).

METHODS In the observational study, we recruited 98 male IPAH patients (mean ± SD age, 41±18 years), at Cardio-Pulmonary Circulation center (Shanghai Pulmonary Hospital), from June 2008 to October 2014. The study included 85 age-matched healthy male control subjects. Serum concentrations of estradiol (E_2), testosterone (TT) and progesterone (P) were measured using immunoassays, and the clinical, functional, and hemodynamic compromises were collected at enrollment.

RESULTS Compared with the healthy controls, serum E_2 concentrations were increased, and serum TT, P concentrations were decreased in IPAH patients [E_2: 153 (99-215) vs 121 (97-140) pmol/l, $p = 0.002$; TT: 8.8 (4.6-21.0) vs 15.8 (12.0-19.5) pmol/l, $p = 0.007$; P: 0.32 (0.22-0.43) vs 0.48 (0.33-0.63) ng/ml, $p < 0.001$]. There were correlations between P and HR, WHO functional class (FC), 6MWD, serum brain natriuretic peptide, pericardial effusion, pulmonary vascular resistance and cardiac output (all $P<0.05$). There were no correlations between E_2 or TT and the above parameters. At linear regression analysis, P was the predictor most associated to WHO FC, 6MWD, PVR elevation and CO reduction. Furthermore, P was only the independent predictor most associated with PVR elevation after adjustment for age, BSA and WHO FC by multivariate analysis (R^2=0.346, 95% IC: -15.635～-0.986, P=0.027).

CONCLUSIONS This work demonstrates serum P concentrations were decreased in male IPAH patients. It's an independent predictor for PVR elevation and could estimate the severity of men with IPAH.

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Galectin-3: a Potential Biomarker in Pulmonary Arterial Hypertension

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OBJECTIVES Pulmonary arterial hypertension (PAH) is a syndrome resulting from a restricted flow through the pulmonary arterial circulation, giving rise to increased pulmonary vascular resistance and